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SOME VARIATIONS OF *CAKILE EDENTULA*.

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THE Sea Rocket, *Cakile edentula* (Bigelow) Hook., as it occurs on the north Atlantic coast—from Iceland and Labrador to South Carolina and the Azores—is essentially uniform, a comparatively low and, when well-developed, a loosely branched and sprawling fleshy plant, with the upper and fertile joint of the fruit ovoid and tapering to a short flattish beak.

About the Great Lakes a plant essentially indetical with that of the Atlantic coast is of local occurrence but it there gives place primarily to a more slender or less fleshy plant with the slender upper joint of the silique long-beaked. This slender-fruited plant of the Great Lakes has been treated by Millspaugh¹ as *C. americana* Nutt. as contrasted with the broader-fruited *C. edentula*; and with the Great Lake plant he has associated a few slender-fruited individuals of the Atlantic coast. There is nothing in Nuttall's description, however, to indicate that by *C. americana* he intended anything but *C. edentula*, unless it be the secondary habitat, "also on the shores of the great North Western Lakes of the St. Lawrence." Nuttall calls for a plant with "Leaves carnose, entire, . . . both articulations often seminiferous, uppermost ovate."² This description is applicable to much of *C. edentula* but not to the slender-fruited plant of the Great Lakes, a plant which has, as Millspaugh says, "Leaves . . . with crenate dentations tending to laceration, and even lobation."

¹ Millspaugh, Field Mus. Bot. Ser. ii. 127 (1900).

² Nutt. Gen. ii. 62 (1818).

On the Pacific coast of North America, from British Columbia to California, *Cakile edentula* is represented by the plant proposed by Heller as *C. californica*¹. This is somewhat stouter and taller and with more ascending branches than the plant of the Atlantic coast, but its fruits are in form essentially identical with those of many eastern specimens. Greene, who was not disinclined to recognize new species, could not separate the Californian material from *C. edentula*, although he was surprised to discover that the two are conspecific, for "from the analogies of plant distribution in America where Old World genera are concerned, we should have expected the other species, *C. maritima* of Europe, to recur on the Pacific coast, rather than that the Atlantic American species should have found place here."² Again, Millspaugh, in monographing the genus, was unable to separate the Californiana plant and treated it as "introduced." Heller had examined one collection of the eastern plant and from it drew the conclusion, "that the fruit is smaller and more elongated than ours [the Californian]"; but had he seen but one collection of the Pacific coast plant and an adequate series from the Atlantic coast he could have reversed this decision.

In one fundamental character alone do the plants of the Great Lakes and of the Pacific coast differ from those of the Atlantic shores. In the latter the articulating surfaces of the two joints, although varying in the degree of convexity or concavity, are essentially smooth. All mature fruits from the Great Lakes and the Pacific, on the other hand, show a striking departure. The articulating surface of the lower joint bears two elongate and four shorter subulate processes which form two correspondingly deep and four shallow pits in the articulating surface of the upper joint. This character is seen in all Great Lake specimens examined, both in the extreme plant with lacerate or deeply lobed leaves and slender long-beaked siliques and in the plant with merely dentate leaves and ovoid short-beaked terminal joints to the silique. On the Atlantic coast very exceptional individuals show a slight development of the processes and pits and others, equally exceptional, have slender siliques.

¹ Heller, *Muhlenbergia*, iii. 10 (1907).

² Greene, *Fl. Francisc.* 277 (1891).

It is evident, then, that *C. edentula* is a species of northern origin, originally extending from Iceland to the North Pacific but since the Pleistocene segregated into three geographic areas, the north Atlantic shores, shores of the Great Lakes and shores of the Pacific; and that in each of these areas the species has developed local tendencies which, although of geographic significance, are not to be considered of specific value. The three variations are

CAKILE EDENTULA (Bigelow) Hook., var. **typica**. *C. edentula* (Bigel.) Hook. Fl. Bor.-Am. i. 59 (1830); Millsp. Field Mus. Bot. Ser. ii. 129 (1900). *Bunias edentula* Bigel. Fl. Bost. 157 (1814). *C. americana* Nutt. Gen. ii. 62 (1818); Millsp. 1. c. 127 (1900); in part. *C. maritima* β . Torr. & Gray, Fl. i. 119 (1838), in great part. *C. maritima*, var. *americana* (Nutt.) Torr. Fl. N. Y. i. 66 (1843), mostly. *C. lanceolata*, subsp. *edentula* (Bigel.) O. E. Schulz in Urban. Symb. Ant. iii. 504 (1903).—Upper joint of silique ovoid or rarely ovoid-lanceolate, short-beaked, its articulating base without pits or pits only rudimentary; articulating summit of lower joint without processes or processes barely developed.—Iceland and Labrador to South Carolina, rarely inland to the Great Lakes; Azores.

Var. **lacustris**, n. nom. *C. americana* Millsp. 1. c. 127 (1900) as to plant described (the Great Lake plant), not Nutt.—Upper joint of silique ovoid-lanceolate, long-beaked, its articulating surface with two deep and four shallow pits; articulating summit of lower joint with two long and four short subulate processes.—Strands of Lakes Ontario, Erie, Huron and Michigan. Since Millspaugh mistook this for Nuttall's *C. americana*, it is well to designate a TYPE: sand along Lake Michigan, Millers, Indiana, September 4, 1911, *E. E. Sherff* in Gray Herb.

Var. **californica** (Heller), n. comb. *C. californica* Heller, Muhlenbergia, iii. 10 (1917).—Stiffer, with more ascending branches than var. *typica*; fruits similar, but the articulating surfaces with six well developed processes and pits.—Coast of the Pacific, from British Columbia to California.

GRAY HERBARIUM.

A NEW SPECIES OF ELEOCHARIS FROM MASSACHUSETTS

C. A. WEATHERBY.

ELEOCHARIS fallax n. sp., perennis; rhizomate longe repente, diametro circa 2 mm., paleis amplectentibus herbaceis striatis longe acuminatis fusco-rubris obsito; culmis fasciculatis, sectione transversali subteretibus vel siccatis leviter compressis, subellipticis, striatis, gracilibus (diametro ad apicem vaginae superioris 0.5–1.1 mm.),